TETRA TECH

August 16, 2019

Mr. Steve Spurlin
On-Scene Coordinator
U.S. Environmental Protection Agency, Region 4
61 Forsyth Street, 11th Floor
Atlanta, GA 30303

Subject: **Nashville International Airport Gas Line**
Nashville, Davidson County, Tennessee
Contract Number (No.) EP-S4-14-03
TDD No. TT-03-034

Dear Mr. Spurlin:

The Tetra Tech, Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) submits this letter report summarizing emergency response activities conducted April 9 through 19, 2019, at the Nashville International Airport Gas Line release site (Site) in Nashville, Davidson County, Tennessee. This report includes three enclosures:

- Enclosure 1 contains figures, including a site location map.
- Enclosure 2 contains a summary tables of air monitoring data.
- Enclosure 3 contains a copy of the Tetra Tech START logbook notes.

EMERGENCY RESPONSE ACTIVITIES

On April 9, 2019, the National Response Center (NRC) notified the U.S. Environmental Protection Agency Region 4 (EPA) that while conducting drilling operations the Tennessee Department of Transportation, (TDOT) struck and ruptured a Colonial Pipeline (Colonial) owned, 12-inch gasoline transmission pipeline at the Nashville International Airport discharging an unknown quantity of product (NRC report #1242283). The breach occurred at 36.137048 degrees north and -86.660321 degrees west (see Figure 1 in Enclosure 1).

Colonial shut down the transmission line after receiving notification of a potential line strike at 1105 hours local time on April 9, 2019. Colonial, their contractors, and the Nashville Airport Authority's on-site contractor excavated the immediate area around the pipeline rupture and established containment measures. Boom and absorbent pads were deployed at six downstream locations along McCrory Creek, approximately 200 yards apart. Contractors used vacuum trucks to collect pooled fuel from the excavated areas and portable tanks to stage waste liquid storage onsite. Additional personnel monitored the creek and areas between the creek and the ruptured line.

On April 9, 2019, the EPA and Tetra Tech START mobilized to the site and integrated into Unified Command. On-Scene Coordinator (OSC) Steve Spurlin reported to the Incident Command Post and OSC Jordan Garrard assisted with field operations. The initial report from Colonial, indicated that approximately 750 barrels (31,500 gallons) of gasoline was discharged into a field located at the end of an airport runway. Once Colonial was able to evaluate the specific damage to the pipeline, the final estimate of the volume discharged was 340 barrels (14,280 gallons). The gasoline flowed eastward overland and in existing drainage features towards McCrory Creek, a tributary to the Cumberland River. Upon arrival

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on-scene, EPA observed pooled fuel within the drainage features leading to McCrory Creek. A multi-acre area of surface soils sloping towards McCrory Creek was impacted by the fuel. The area underlaid with karst geology, where eroded limestone creates fissured pathways and sinkholes allowing the discharged product to migrate unpredictably. Migration of the discharged product into the down gradient surface water body, McCrory Creek, was closely observed. McCrory Creek is located approximately nine hundred feet to the east of the discharge point and flows approximately three miles to the Stones River which joins the Cumberland River, approximately five miles downstream.

As more heavy equipment arrived onsite, the drainage ditch located along the access road, to the north of the rupture, was excavated to below original grade by several inches, where possible. All excavations were affected by the extremely variable size of the fill material in the hillside. Underflow dams were installed at the end of the drainage ditch excavation and just prior to where a topographically lower drainage ditch from the hillside was routed to enter McCrory Creek, southeast of the rupture (see Figure 3 in Enclosure 1). Several exploratory trenches and holes were excavated to target the release pathway. No product was initially observed in the trenches and no sheen or odor was discovered along the creek.

The EPA tasked Tetra Tech START to assess air quality due to the gasoline volatilizing from the ruptured line. The area surrounding the release included a long-term parking lot approximately 100 meters to the west of the ruptured line, undeveloped land to the north, McCrory Creek to the east, and an airport runway to the south (see Figure 2 in Enclosure 1). EPA tasked Tetra Tech START, on April 10, to set up air monitoring locations to assess the site and potential impacts to surrounding areas, focusing on the nearest receptor area. Tetra Tech START was also tasked to provide intermittent air monitoring support in the work zones to confirm the success of personnel protective measures.

On April 10, Tetra Tech START set up an AreaRae Pro air monitoring station between the site and the public parking lot to the west (see Figure 2 in Enclosure 1, Unit 9). The AreaRae Pro was configured with sensors for detection of oxygen, carbon monoxide, hydrogen sulfide, lower explosive limit (LEL), volatile organic compounds (VOCs), and gamma radiation. Tetra Tech START monitored the station from the site staging area via a computer using ProRae Guardian and VIPER telemetry. Due to VOC readings that ranged from 3 to 13 parts per million (ppm), three additional air monitoring stations were set up (see Figure 2 in Enclosure 1). All four stations sampled continuously until the evening of April 11.

Table 1 summarizes air monitoring data captured by VIPER. The data was divided into three 12-hour periods for the report. The VOC detections ranged from non-detect to 43.18 ppm. All other parameters monitored; carbon monoxide, hydrogen sulfide, and the LEL did not have any detections. Oxygen levels remained consistent at approximately 20.9%.

On April 11, OSC Garrard discovered a location where product had emerged from the bank and began to discharge into McCrory Creek. Tetra Tech START used a MultiRae Pro to continuously monitor for VOCs and an UltraRae to spot check benzene concentrations to assist Colonial in their worker safety air monitoring during certain tasks. The START and Colonial air monitoring detections in the work zones were consistent for benzene. Benzene detections were seen as high as nine ppm, but most detections ranged from three to five ppm. All detections in work zones were for very short durations. When benzene was detected, the workers would stop and exit the work area. If the benzene levels remained elevated, personnel were prepared to increase the level of respiratory protection and institute further engineering controls.

To address the release to the creek, Colonial placed additional boom and absorbent pads over the discharging product until the vacuum trucks were positioned. Hand augers were used to delineate the product's below ground pathway to the creek. An interception trench was constructed up gradient of the

discovered seeps along the creek bank. Once completed, a vacuum truck was used to remove the collected product from the trench (see Figure 3 in Enclosure 1).

On April 12, the perimeter air monitoring was discontinued, as the pipeline was no longer releasing product and the damaged line was temporarily repaired. Colonial discovered a second seep of product into the creek, approximately eight feet north of the first observed seep and expanded the trench to better intercept the pathway to the second seep. As product was observed collecting in the excavated drainage ditch along the access road, the vacuum truck was used to remove product from the ditch. Colonial began excavating the surface soil along the affected area of the hillside (an area approximately 150 feet wide, 300 feet long, and 0.5 feet deep) to remove affected soil (see Figure 3 in Enclosure 1).

On April 13, Colonial identified an additional seep located approximately 20 feet upstream of the first observed seep. Colonial placed soft boom around the seep and utilized a vacuum truck to remove the product. Additionally, exploratory holes were dug along the northwestern and western portion of the hillside, nearer the airport, to investigate other potential product pathways. Fill material composition prevented hand auger use. Colonial continued excavating affected surface soil from the hillside and using vacuum trucks for removing product collected in the trench. As the excavation proceeded, Colonial began to back fill and stabilize the excavated surface soil area to minimize sediment erosion.

On April 14, a portion of the boom in the creek failed due to higher water levels and a faster flow rate from an overnight rain event. Most of the downstream boom was still in place, and no sheen was observed downstream off the airport property. Colonial continued excavating and backfilling the affected surface soil area on the hillside and utilizing vacuum trucks to remove product collected in the trench.

On April 15, the Unified Command conducted a meeting to discuss future actions at the Site. In addition to EPA, Colonial, TDOT, the Nashville Airport, and the Tennessee Department of Environment & Conservation (TDEC) Water and Remediation programs were in attendance. Colonial presented the current status of the incident, committed to continue to conduct necessary actions to address the discharge, and opened dialogue with TDEC regarding future activities related to water quality and remediation. OSC Spurlin determined that Colonial had adequate resources in place to address the discharge and demobilized from the Site. OSC Spurlin utilized a local START to periodically monitor the ongoing work for the next week.

From April 15 to 19, Colonial continued to remove product from the trench and continued excavation and backfill on the affected hill near the rupture site (see Figure 3 in Enclosure 1).

As of April 19, an estimated 3,616 cubic yards of soil were stockpiled for removal, and 39,831 gallons of liquid were collected from the recovery trench; 837 gallons of the recovered liquid was estimated to be fuel. It is anticipated that additional soils and waste liquids will be generated as Colonial continues to recover fuel from existing collection points. Colonial has installed multiple, additional collection trenches and points to improve the efficiency of the collection of the fuel and continues to maintain and monitor the creek boom (see Figure 3 in Enclosure 1). In coordination with TDEC, Colonial has implemented a surface water quality sampling program.

Colonial has agreed to continue the applicable removal efforts and response operations until there is no longer a discharge or threat of discharge to the surface waters.

Tetra Tech START demobilized on April 19, 2019.

If you have any questions or need additional copies of this report, please contact Leslie Shaver at (678) 775-3093 or leslie.shaver@tetratech.com.

Sincerely,

Leslie Shaver
START IV Project Manager

Andrew F. Johnson
START IV Program Manager

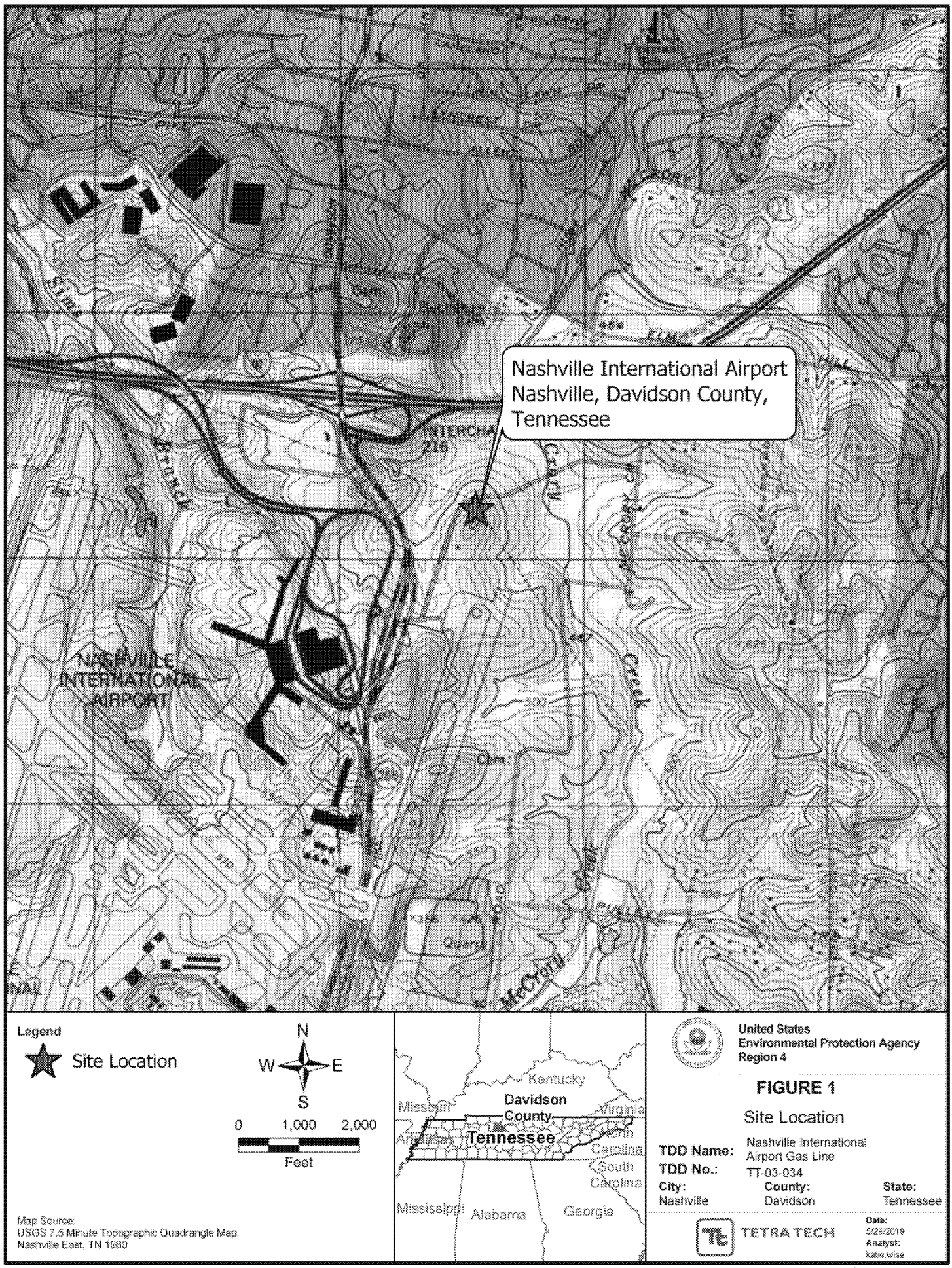
Enclosures (3)

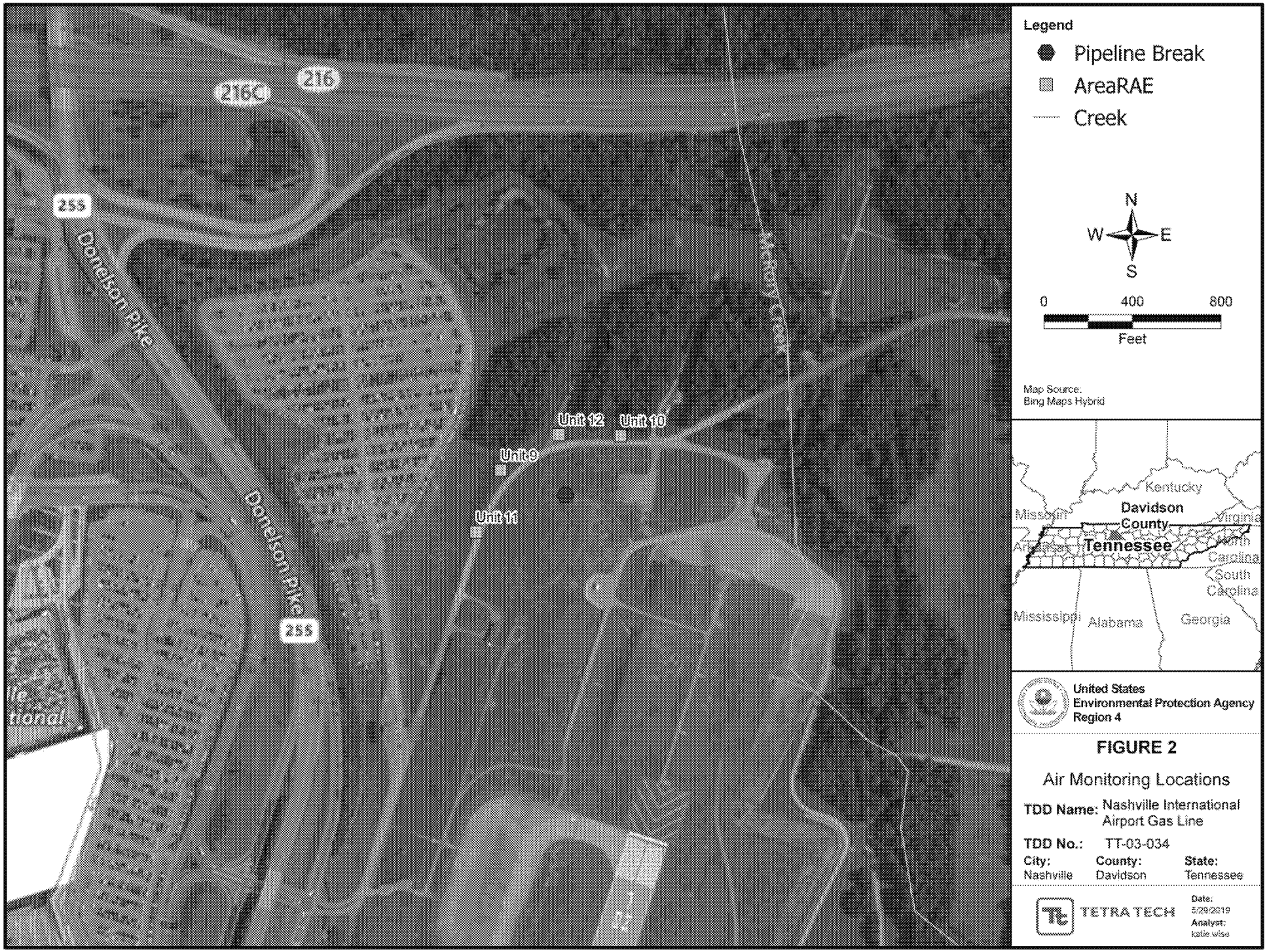
cc: Katrina Jones, EPA Project Officer
Angel Reed, START IV Document Control Coordinator

ENCLOSURE 1

FIGURES

(3 Pages)


Nashville International Airport
Nashville, Davidson County,
Tennessee
NASHVILLE INTERNATIONAL AIRPORT
Legend
Site Location
N
W
E
S
0
1,000
2,000
Feet
Kentucky
Davidson
County
Tennessee
Mississippi
Alabama
Georgia
Carolina
Virginia
United States
Environmental Protection Agency
Region 4
FIGURE 1
Site Location
TDD Name: Nashville International Airport Gas Line
TDD No.: TT-03-034
City: Nashville
County: Davidson
State: Tennessee
TETRA TECH
Date: 5/29/2019
Analyst: katie.wise
Map Source:
USGS 7.5 Minute Topographic Quadrangle Map:
Nashville East, TN 1980
File: C:\Users\katie.wise\Documents\My Received Files\TT-03-034_Fig.aprx


Legend
Pipeline Break
AreaRAE
Creek
N
W
E
S
0
400
800
Feet
Map Source:
Bing Maps Hybrid
216C
216
255
Donelson Pike
Mcleroy Creek
Unit 12
Unit 10
Unit 9
Unit 11
Donelson Pike
255
Kentucky
Davidson
County
Tennessee
Missouri
Virginia
Carolina
South
Carolina
Mississippi
Alabama
Georgia
United States
Environmental Protection Agency
Region 4
FIGURE 2
Air Monitoring Locations
TDD Name: Nashville International Airport Gas Line
TDD No.: TT-03-034
City: Nashville
County: Davidson
State: Tennessee
TETRA TECH
Date: 5/29/2019
Analyst: katie.wise
File: C:\Users\katie.wise\Documents\My Received Files\TT-03-034_Pro.aprx


Legend
Access Road
Airport Security 15/1
Boom
Dammed Culvert
Excavated Area
Frac Tank
Leak Site
McCrory Creek
Pipeline
Proposed Fence
Seep Area
Staging Area
Trenches
Underflow Dam
9
BNA 8
Harper Pl
Royal Pkwy
McCrory Creek Rd
Neilworth Ln
40
Airport Security Check Point
Elm Hill Pike
Frac Tank
Stockpile 1
Stockpile 2
Check In/Check Out
7
6
5
Staging Area
BNA 4
BNA 3
2
Interceptor Trench 5
Roadside Trench
Seep Area
Interceptor Trench 1
Interceptor Trench 3
Underflow Dam
Interceptor Trench 2
Dammed Culvert
BNA Fence Line
Airport Security 15/1
Google Earth
Figure 3
Provided by Colonial Pipeline
N
1000 ft

ENCLOSURE 2

TABLES

(3 pages)

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Nashville International Airport Gas Line

From: 4/10/19 8:22 ***To:*** 4/10/19 20:24

Location 1, Unit 9, Northwest of ruptured pipeline							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL/TLV/60 min AEGL)**
AreaRAE 1	VOC	No	8,325	5,752	0 - 8.707 ppm	0.5 ppm	1 ppm
	CO	No	8,279	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	8,325	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	8,325	8,325	20.4 - 21.1%	20.9%	<19.5 or >23%
	LEL	No	8,325	0	0 - 0%	0%	10%

Location 2, Unit 10, Northeast of ruptured pipeline							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL/TLV/60 min AEGL)**
AreaRAE 2	VOC	Yes	6,852	5,261	0 - 13.616 ppm	1.4 ppm	1 ppm
	CO	No	6,852	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	6,852	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,852	6,852	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,852	0	0 - 0 %	0%	10%

Location 3, Unit 11, Southwest of ruptured pipeline							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL/TLV/60 min AEGL)**
AreaRAE 3	VOC	No	6,688	603	0 - 4.748 ppm	0.1 ppm	1 ppm
	CO	No	6,688	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	6,688	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,688	6,688	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,688	0	0 - 0%	0%	10%

Location 4, Unit 12, North of ruptured pipeline							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL/TLV/60 min AEGL)**
AreaRAE 4	VOC	No	6,544	3,677	0 - 7.65 ppm	0 ppm	1 ppm
	CO	No	6,544	44	0 - 5 ppm	0 ppm	83 ppm
	H_2S	No	6,544	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	6,544	6,544	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	6,544	0	0 - 0%	0%	10%

Notes:

%	Percent
<	Less than
>	Greater than
AEGL	Acute Exposure Guideline levels for airborne chemicals
CO	Carbon monoxide
H_2S	Hydrogen Sulfide
LEL	Lower Explosive Level
min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppm	Parter per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
µg/m³	Micrograms per cubic meter
VOC	Volatile organic compoud

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Nashville International Airport Gas Line

From: 4/10/19 21:01 ***To:*** 4/11/19 8:56

Location 1, Unit 9, Northwest of ruptured pipeline							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL/TLV/60 min AEGL)**
AreaRAE 1	VOC	No	1,236	119	0 - 5.2 ppm	0.1 ppm	1 ppm
	CO	No	1,262	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	1,262	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	1,262	1,262	20.9 - 21.3%	20.9%	<19.5 or >23%
	LEL	No	1,262	0	0 - 0%	0%	10%

Location 2, Unit 10, Northeast of ruptured pipeline							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL/TLV/60 min AEGL)**
AreaRAE 2	VOC	Yes	1,076	1,035	0 - 43.18 ppm	2.3 ppm	1 ppm
	CO	No	1,124	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	1,124	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	1,124	1,124	20.9 - 21.3%	20.9%	<19.5 or >23%
	LEL	No	1,124	0	0 - 0 %	0%	10%

Location 3, Unit 11, Southwest of ruptured pipeline							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL/TLV/60 min AEGL)**
AreaRAE 3	VOC	No	1,312	40	0 - 0.98 ppm	0 ppm	1 ppm
	CO	No	1,419	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	1,419	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	1,419	1,419	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	1,419	0	0 - 0%	0%	10%

Location 4, Unit 12, North of ruptured pipeline							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL/TLV/60 min AEGL)**
AreaRAE 4	VOC	No	1,193	973	0 - 13.47 ppm	1.5 ppm	1 ppm
	CO	No	1,290	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	1,290	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	1,290	1,290	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	1,290	0	0 - 0%	0%	10%

Notes:

%	Percent
<	Less than
>	Greater than
AEGL	Acute Exposure Guideline levels for airborne chemicals
CO	Carbon monoxide
H_2S	Hydrogen Sulfide
LEL	Lower Explosive Level
min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppm	Parter per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
µg/m³	Micrograms per cubic meter
VOC	Volatile organic compoud

Air Monitoring Summary Tables

The table below summarize monitoring data collected on using EPA's Viper wireless remote monitoring system.

Project Name: Nashville International Airport Gas Line

From: 4/11/19 9:01 ***To:*** 4/11/19 18:53

Location 1, Unit 9, Northwest of ruptured pipeline							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL/TLV/60 min AEGL)**
AreaRAE 1	VOC	No	4,843	0	0 - 0 ppm	0 ppm	1 ppm
	CO	No	4,843	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	4,843	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	4,843	4,843	20.9 - 21.8%	21.4%	<19.5 or >23%
	LEL	No	4,843	0	0 - 0%	0%	10%

Location 2, Unit 10, Northeast of ruptured pipeline							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL/TLV/60 min AEGL)**
AreaRAE 2	VOC	No	4,829	4,800	0 - 4.335 ppm	0.6 ppm	1 ppm
	CO	No	4,829	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	4,829	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	4,829	4,829	20.9 - 21.6%	21.3%	<19.5 or >23%
	LEL	No	4,829	0	0 - 0 %	0%	10%

Location 3, Unit 11, Southwest of ruptured pipeline							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL/TLV/60 min AEGL)**
AreaRAE 3	VOC	No	4,943	0	0 - 0 ppm	0 ppm	1 ppm
	CO	No	4,943	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	4,943	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	4,943	4,943	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	4,943	0	0 - 0%	0%	10%

Location 4, Unit 12, North of ruptured pipeline							
Instrument	**Analyte**	**Period Average Exceedances**	**Number of Readings**	**Number of Detections**	**Concentration Range**	**Period Average**	**Action Level (PEL/TLV/60 min AEGL)**
AreaRAE 4	VOC	No	4,631	1,827	0 - 6.556 ppm	0.3 ppm	1 ppm
	CO	No	4,631	0	0 - 0 ppm	0 ppm	83 ppm
	H_2S	No	4,631	0	0 - 0 ppm	0 ppm	0.5 ppm
	O_2	No	4,631	4,631	20.9 - 20.9%	20.9%	<19.5 or >23%
	LEL	No	4,631	0	0 - 0%	0%	10%

Notes:

%	Percent
<	Less than
>	Greater than
AEGL	Acute Exposure Guideline levels for airborne chemicals
CO	Carbon monoxide
H_2S	Hydrogen Sulfide
LEL	Lower Explosive Level
min	Minute
O_2	Oxygen
PEL	Permissible exposure limit
ppm	Parter per million
PM	Particulate matter
SOG	Standard Operating Guidelines
TLV	Threshold limit value
µg/m³	Micrograms per cubic meter
VOC	Volatile organic compoud

ENCLOSURE 3

LOGBOOK NOTES

(14 Pages)

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ISBN: 978-1-60134-186-0

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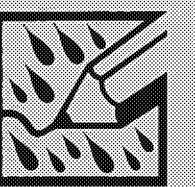

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TT-03-034

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DEFYING MOTHER NATURE

Name L. Shaver; Tetratech

Address leslie.shaver@tetratech.com

Phone 678-325-9276

Project Nashville Int. Airport Gasoline Regions

MADE IN USA · RITE GREEN · Archival

RiteintheRain.com

CONTENTS

PAGE	REFERENCE	DATE

 Nashville Gas 4/9/19

1004 pm CST START arrives @ site
OSC Spurlin & Gerrard onsite
CTH - colonial contractor
~~Ⓟ6~~ = monitoring
team doing perimeter (receptors
& airport parking lots)
- Gasoline release (750 barrels)?
- tox guy doing safety plan
- we will cover / fill in gaps
or parallel, to check their
readings
- on hill central air monitoring survey
- 8 totes of encapsulating foam, F500
- apply foam to pipe area & start
excavating soil, once levels
are acceptable
- McCrory Creek is near release
fixed booms on ~~200~~ creek every
200 yards.
- RP is clearing utilities
then will start excavation,
as excavating will spray & encapsulate
with foam & stockpile
CTH is getting
0.2 - 0.3 ppm on Benzene (0.5 ppm PEL)
1-2 ppm VOC
1100 off-site

[signature]

4/10/19 Nashville Gas L. Shaver

0610 START Shaver & Williams onsite
Weather: currently 50°s & clear expected
to reach low 80's & stay clear
Workplan: set up air monitoring stations
review site to locate any gasoline

Bump & prep AreaRaes & MultiRaes

stay deploy - ① @ parking lot
East ②

0727 Deploy AreaRae unit 9 ~~south~~ of
airport parking lot, west ~~N~~ ② of pipeline breach
- 0855 OSC Spurlin ~~hardcopy~~ delivered a hardcopy
of NOFI letter to Colonial Incident
Command @ ICP NOFI = notice of federal interest
1014 AreaRae unit 11 deployed

1010 AreaRae unit 10 deployed
1025 AreaRae unit 12 deployed
START Williams reviewed stream
yes! ① (McCrory Creek?) photodocumented
lack of sheen in all areas
- Crew has almost reached the pipe
in the main excavation

Scale: 1 square = ______

[signature]

ED_006255_00000231-00016

4/10/19 Nashville Gas L. Shaw

crew has also excavated drainage ditch and down slope from drainage ditch
- photos collected
- crew has uncovered pipe and breach, product still coming out of crack in pipe
- they do not want to remove drill bit from pipe until sure there is no remaining pressure in pipe, they will let product accumulate in excavation hole and use vacuum truck to remove from hole
- 2 underflow dams have been installed where the drainage ditch empties into McCrory Creek, OSC Gerrard has requested to add more pipes to each underflow dam
- crew removed drill bit from pipeline, crew will continue to excavate affected material (fill w/ lots of concrete with the soil) prior to vacuum accumulated product from excavation when needed
- crew will continue to excavate and vacuum until able to access pipe for sleeve repair process, vacuum activities

Scale: 1 square =

4/10/19 Nashville Gas L. Shaw

will continue until product no longer accumulates
- PRG will continue to run overnight while crew continues work
- Alarms set for 5 min TWA @ ≥ 15,000 ppb (15 ppm) for VOCs
- data for day was variable across the 4 Area Rae units highest reading for VOCs was over 13,000 ppb, all detections were instantaneous and did not sustain for any length of time
1945 START leaves site for hotel

4/10/19

Scale: 1 square =

4/11/19

0630 START onsite. VIPER did not run all night be the EPA computer logged the user out via security measures. Restarted VIPER.

0730 Data manually downloaded off of AreaRae's through PRORae Studio II.

0830 All stations up and runing. Creek did not have any product, but the creek east of the road had a strong gas odor.

1000 OSC Gerrard located a spot where product is beginning to come out of and entering the creek. Crews begin to address it by placing absorbent pads and additional boom out. A suction tank was brought down to collect the product.

1100 Batteries to Area Rae's changed monitoring PoRae Guardian & VIPER as well as collecting photos.

- START reviewed area near Creek where seep is being addressed, VOCs will waft as crew removes saturated pads & boom, several benzene readings on the benzene multi Rae, most 3-7 ppm

4/11/19 Nashville Gas (Shaver

some 8 and 9 ppm
- no reading were sustained, all were gone in seconds
- after seep was found Colonial Crew used hand augers to depth of 5-6 ft several holes had benzene readings on the multi Rae.
- Colonial will excavate a trench upslope of the seep area
- the seep slowed down for ~ an hour and then started seeping more, crew still catching and vacuuming at ~1615 Crew begins excavation of trench upslope of seep @ creek, refusal @ 6.5 ft with large flat-ish rock? product began seeping into the excavation
- Crew will continue to vacuum product from seep and the excavated trench
- night ops will place more plastic sheeting over potentially affected soil in anticipation of rain events (today & Sunday)
- start off site @ 1950 @1800
- Area Raes stopped and not monitoring, because of high gusting winds and rain expected

Scale: 1 square =

8 4/12/19 Nashville Gas L. Shaver

0655 START on site,

Weather: rain event expected this morning
70-80's, overcast

- Crew discovered second seep ~8ft N of 1st seep
- also being vacuumed out
- crew also vacuumed accumulated product from auger holes N of trench
- bailer placed in auger hole showed 4-5 inches of product
- crew is planning to excavate another trench near auger holes of product
- will make this trench bigger (longer not wider)
- 750 → 200 → 380 barrels
  original report | 2nd estimation | 16,000 gallon new estimation
- crew planning to begin excavation on hillside, start w/ 6in deep, will collect confirmation samples from floor of excavation
- Crew using hand augers to try and delineate along bank stepping out

Scale: 1 square =

4/12/19 Nashville Gas L. Shaver 9

from seep areas
- delayed excavations due to equipment issues
- boom (same) excavator will be replaced due to a contractor demobbing
- START Williams demobilized ~0715
- START Shaver and OSC Garrard reviewed stream bank down stream of seeps
  - no further seeps nor sheen seen down stream
- a contractor is potentially taking their boom when demobilizing they have been informed that the "new" boom must be placed in adjacent down stream before removing "old"
- OSC Garrard off-site, demobilized
- Crew found a seep into a ditch/trench halfway down slope of hill, crew will vacuum it out later
- ~1000 crew begins pulling back poly starting at top of hill closest to excavator
- vac truck to hillside ditch seep
- excavation/scrape on hill is ~150ft (N to S) wide & 300ft long (E to W) ~60,000 sqft

Scale: 1 square =

4/12/19 Nashville Gas L. Shaver

trench is ~ 7-8 ft deep, ~1/2 in depth produce of seeping from the upslope (W) wall of the trench in several places

- trench extended to the south
- crew has begun backfilling the scrape on the hill, decent separation between excavation and backfill
- crew installing plastic perforated pipe as risers in the trench, to hold the hole open in case of wall collapse
- crew will cover stock piles with poly before rain event

Jerad Tate (CP)
205-306-0987

- reviewed main contaminated soil stockpile

1915 START off-site

Scale: 1 square = _____

4/13/19 Nashville Gas L. Shaver

0710 START Shaver onsite

Weather: currently raining, expected to rain all day in varying strengths

- crew discovered 3rd seep in McCrary Creek bank, ~ 20 ft upstream of 1st seep
- this new seep is being addressed vac truck hose just in water, & 3-4 layers of soft boom surrounding area
- reviewed ~ 50 ft upstream of 3rd seep no other seeps as shown seen, issue is this area of the bank is mostly rock and the flow is faster, making it difficult to see further seeps
- crew has continued excavation of hill side path of gas release, last night they ran into LEL & VOC hits on monitoring devices so excavation paused until day opt for more safety
- crew had to excavate holes on the NW side of the hill to evaluate if any gas was on that side, too rocky for augers
- excavated adjacent to hole of the pipe break to the east and started down hill
- Crew found product / screen monitors in hole on airport side of hill

Scale: 1 square = _____

12 4/13/19 Nashville Gas L. Shaver

crew has covered area at base of hill before crossing road, this area was excavated last night & had the high LEL (hard >50 @ 57) and high VOCs (both reported not seen by START

- crews excavating at top of hill, both at the original breaks and at the holes on the hillside close to airport
- fire fighters are spraying the foam fire retardant in excavation near the break
- crew backfilling the large hillside excavation (not @ bottom of hill)
- after kind-of backfilling the crews are laying plastic over hillside in preparation for overnight rain event
- 1800 START of-site

Scale: 1 square = _____

4/14/19 Nashville Gas L. Shaver 13

0700 START to site

Weather currently between large rain storms site conditions are muddy, overcast, sewer weather expected later

- most of the poly is still covering the hill
- the seep found in the ditch has pushed a little more ditch full of water because has blocked drainage
- crew has further excavated the pipe line near the break while back filling the 2 nearest holes excavated @ to check for product pockets
- the excavation near the airport parking lot has been covered with poly
- boom failure in creek due to higher water & flow rate, downstream booms are still mostly in place, no sheen seen escaping but sheen of foam seen @ 1st boom down stream from seeps

0900 START Shaver demob to Work

Scale: 1 square = _____

14 4/15/19 Nashville Gas T. Taylor

0745 - on site.
Crew pumped out catch basin at bottom of hill.

0900 - crews excavating trenches 6" of soil from berm - uncovered plastic at top of hill near Pipeline Break.

0930 - scraping path from lower level to crest.

0930 - wear points - day 2 piles slight sheen - interceptor Boom in place approx 3 feet in creek, hard boom in water. soft Boom has been changed.

0950 - Colonial coating the pipe with HDPE. Wheel line broke around Erosion control matting in place on hill from pipe break. Silt fence is also installed.

Tad Taylor

Scale: 1 square =

4/15/19 Nashville Gas T. Taylor 15

- Clearing trees 25 yds
Mike Cutting -
423-280-[illegible]
from the interceptor trench to placemonitoring wells.

Mike Newmyer
423-247-8635
10:00 meeting Colonial pipeline
9 booms, 4 us
As far as they have seen is boom site 4.
Colonial is collecting surface water on McCoy Creek and inspecting the Cumberland River. trench recovering 1 gallon per hr
Seeps have reduced.
- Continue assisting boom trench operations.
- Capped and seeding Road side trench.

Tad Taylor

Scale: 1 square =

16 4/15/14 Nashville Gas

scrapping and seeding near the retention basins
- Remove trees west of the trench
- issue operation and maintenance plan
- Hand auger Bays near the Dam Culvert
- 2 stockpile areas

spurline - to the point still attached to
- State to look at water and Nashville water
- Ken assisting with Assessment for the State Review.
- Airport would like to be part of the decision
- 24 hr ops - Remainder of the plan -

* Juan Cazares
Colonial Project Leader
404-559-0186

Scale: 1 square =

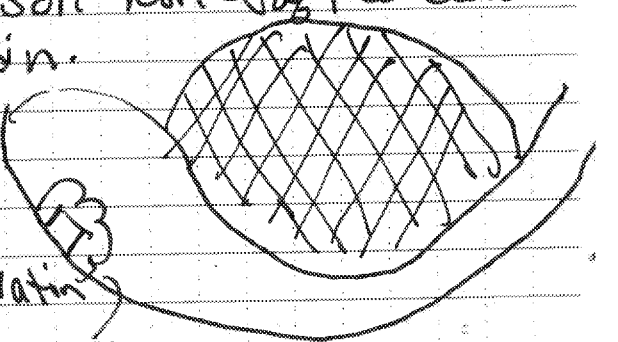
4/15/14 Nashville Gas Ltg 17

11:00 - Site walk - Continue with clearing trees 25 yds in front of the interceptor trench. Remove plastic @ the catch basin.

12:30 Lunch

1300 Return to work
Colonial has brought a chipper grinder to chip trees Removed near the interceptor trench.

1400. Colonial is Removing 6"-10" of soil north of the catch basin.



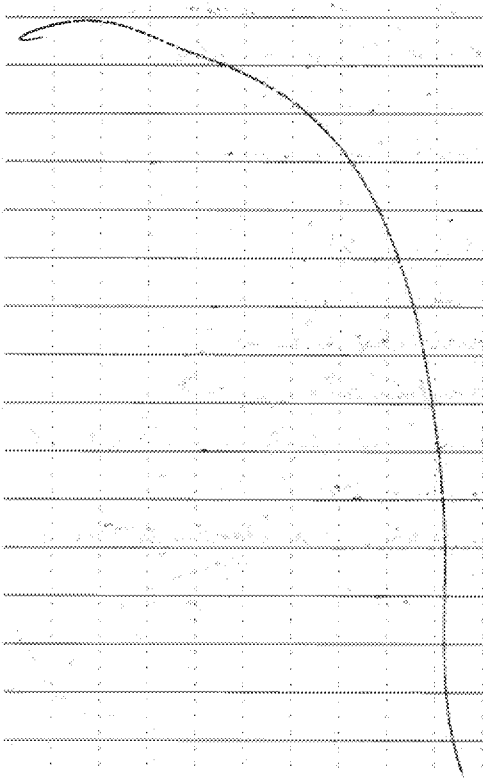
##. Excavation area - 25 yds by 30 yds

Dirt Plug covering Concrete still in

Scale: 1 square =

18 4/16/19 Nashville Gas "Taylor

15:00 Left Site.
16:00 - Arrive at office



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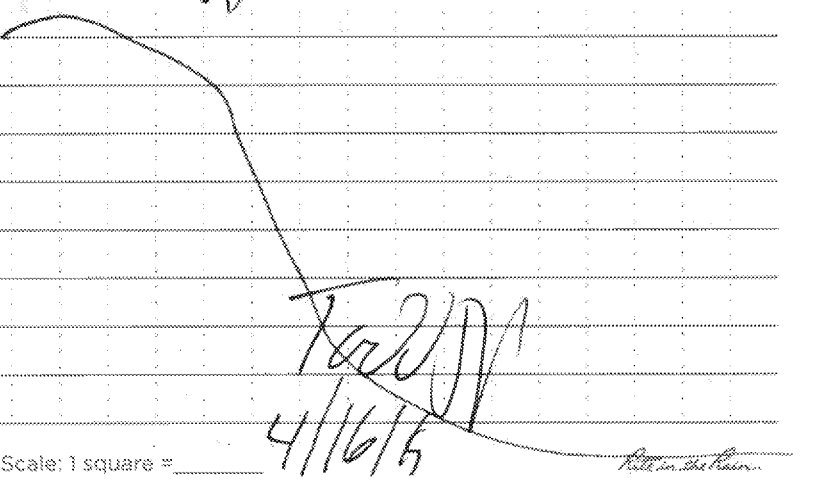
4/16/19 Nashville GAS "Taylor" 19

0730 - Crew Continue to remove Product from the Interceptor trench
0740 - excavating the soil to the north of the catch Basin
0900 - Observed crew ready area.
0830 - Left Site.
14:00 Return to Site
- Continue pumping
- Transporting soil to #2 Laydown on site
- trench complete.
1600 - off Site.



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4/17/19 Nashville GAS 1 Tgl

0730 - completing the trench installation North of the Existing trench

0830 - observed contractor Pumping from the existing trench.

0845 - observed Boom in 3 locations along the creek. Hard Boom and soft Boom in proper positions

0900 observing the Placement of seed on the erosion Mats on the Hill down from the Pipe damage.

10:00 Left site.

16:00 Return to site - Colonial Contractor pumping from existing trench

1700 Left site.

[signature] 4/17/19

Scale: 1 square = ________

4/18/19 Nashville GAS 1 1/1

0900. Tailgate safety meeting - met with Gabe Parris with Colonial 423-443-8143

- to date the Colonial Pipe line Excavation has yielded 3,616. Cubic yards of soil Stockpiled in area 1(+)2.

- to date they have removed 39,831 gallons of Liquid from the Recovery trench 837 is estimated to be fuel

- Site activities
- Pump from trench manifold, Change Booms as necessary
- Soak up seepage that Release fuel

1100 - Left site.

[signature]

Scale: 1 square = ________

4/19/19 Nashville GAS Taylor

0730 - Site Activities
- Vacuum Trucks continue to
- Rained over night 0.69 inches of rain.
- No other Activities other than pumping from the manhole continue to collect surface water seeps
- two vacuum trucks onsite
- Creek may have risen * 2 inches
- Spoke with Gabe Parris Colonial onsite rep.
- Boom Replaced
- 6 pads used in the last 24hrs to catch Burps coming from the seeps.

0800 - Called QSC
0830 - Left Site

4/19/19

Scale: 1 square =

Scale: 1 square =